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HEDGPETHIUS TRIDENTATUS, A NEW GENUS AND NEW SPECIES, AND OTHER PYCNOGONIDA FROM KEY WEST, FLORIDA, U. S. A.

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The following specimens were collected during repeated surveys for marine annelids by Dr. Meredith L. Jones, of the Smithsonian Institution, on the islands of Key West, Florida. They include five species, two of which are new. This is rather surprising, because the area 60 miles west of Key West was intensively collected for marine organisms for many years during the time the Carnegie Institute Marine Laboratory was located in the Dry Tortugas Islands. These collections were reported on by Hedgpeth (1948), and hardly any new species have come to light from southern Florida since that time. That the present collection contains 40 percent new species attests to the careful hand collecting techniques used by Dr. Jones.

I wish to thank Dr. Jones for making the specimens available for study. They are deposited in the collections of the U. S. National Museum of Natural History (USNM).

Ammotheidae Dohrn, 1881

Hedgpethius, new genus

Diagnosis: Ammotheidae: *Ascorhynchus*-like with minutely papillose body surface, without trunk or lateral process tubercles. Anterior trunk segment longer than combined length of posterior 3 segments. Ocular tubercle near extreme anterior of first segment; first lateral processes at extreme posterior of first segment, imparting "long necked" appearance. First 2 trunk segments articulated, last segment only faintly articulated. Proboscis with large ventrodistal mouth opening and 3

anterior pointing tubercles arranged laterally and ventrally around its largest circumference. Scape 1-segmented, very short; chela vestigial, ovoid, without fingers. Palp 6-segmented. Oviger (female) rudimentary, 3-segmented. Propodus with large auxiliary claws more than twice length of very reduced main claw.

Type-species: *H. tridentatus*, n. sp.

Etymology: Named for Joel W. Hedgpeth in recognition of his enduring contributions to the phylogeny and systematics of the Pycnogonida. Gender, masculine.

Relationships: This genus is closely related to *Ascorhynchus*, but has the following peculiarities which immediately remove it from the many described species of that genus: It has 6 rather than 9 palp segments, and peculiarly degenerate ovigers which are alike on both specimens examined. The proboscis tubercles are not found on any *Ascorhynchus* species and may be similar in nature to the female sexual (?) alar processes of *Anoplodactylus portus* and *A. digitatus*. Perhaps they exist only on females of the new genus. The presence of dominant auxiliary claws flanking a reduced main claw is not found in any species of *Ascorhynchus*, a genus without auxiliary claws. The genus *Ammothella* has 1 species, *A. biunguiculata*, in which this claw configuration exists, but here the main claw is reduced to a tiny tubercle which does not appear to have articulation. There is no further resemblance between *Hedgpethius* and *Ammothella*. The extremely long first trunk segment is similar to some species of *Ascorhynchus*, although with *Hedgpethius* it is longer in relation to the other trunk segments than with any *Ascorhynchus* species.

The genus *Hedgpethius* is placed tentatively in the Ammotheidae because, although the presence or absence of complete male ovigers is unknown, it conforms with all other definitions of this heterogeneous group of genera.

Hedgpethius tridentatus, new species

Figure 1

Material examined: Holotype, USNM 149797, ovigerous female; Paratype, USNM 149798, female: Key West, just west of bridge to Fleming Key, south shore among intertidal and subtidal rocks, 24 March 1968, Sta. KW-5.

Description: With the characters of the genus. First body segment 0.3 longer than combined length of posterior 3 segments. Lateral processes short, less than half trunk diameter, separated by their own diameter, all but posterior pair armed with single dorsodistal seta. Ocular tubercle a low truncate cone near anterior of ocular segment. Eyes large, unpigmented in alcohol. Abdomen short, slightly bulbous distally, not extending beyond fourth lateral processes, armed with 2–3 short dorsodistal setae.

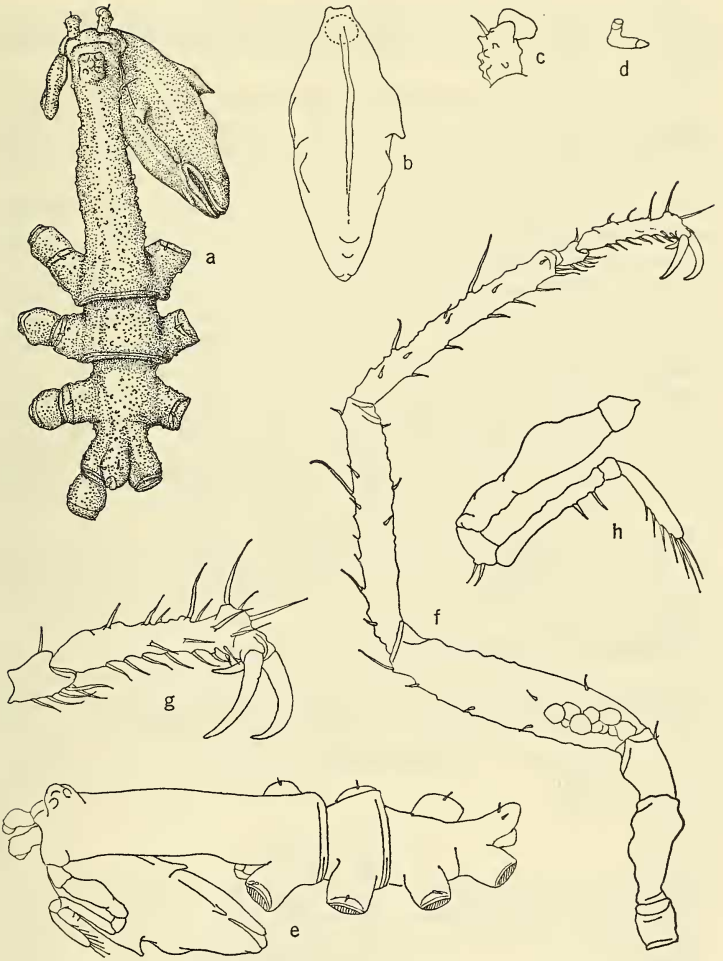

FIG. 1. *Hedgpethius tridentatus*, new genus, new species: a, dorsal view of trunk; b, dorsal proboscis; c, chelifore; d, oviger; e, oblique view of trunk; f, third leg; g, terminal segments of third leg; h, palp.

Proboscis large, ovoid, without constrictions, carried pointing posteriorly as in *Ascorhynchus*. Two dorsolateral and 1 ventral anterior-pointing tubercles surmount widest diameter of proboscis at ⅓ its length. Anterior to dorsolateral tubercles are 2 bulges in same longitudinal axes. Mouth at anterior tip, extending ventrally for ⅕ length of proboscis; lips flat, distinct.

Scape 1-segmented, short, heavily papillose, armed with single dorsodistal seta. Chela vestigial, carried anaxially, ovoid, without trace of fingers.

Palp 6-segmented. First segment no longer than wide; second longest, inflated toward proximal end, with hint of suture line towards distal end; third twice as long as wide, armed with 2 ectal setae as long as segment diameter. Fourth segment thin, ⅝ length of second, armed with 2 stout ectal setae or spines distally. Fifth as wide as long, unarmed; sixth 6 times its diameter, armed distally and ectally with 7–8 setae. Distal setae longer than 3 times diameter of segment.

Oviger (female) rudimentary, 3-segmented, arising on ventral surface of ocular segment just anterior to first lateral processes. First and third segments subequal; second 3 times as long, L-shaped. All segments extremely small.

Third leg of moderate length, femur swollen with eggs. Femur subequal in length to tibiae, tibiae equal, armed with several short dorsal setae and 1–2 setae longer than segment diameter, several lateral and ventral setae shorter than segment diameter. Propodus thin, without heel or large sole spines, armed with long dorsal setae arising from tubercles and several lateral and distal setae. Main claw tiny, curved ventrally under propodus. Auxiliaries large, over twice main claw length, strongly curved. Propodal sole armed with single row of 7–8 setae equal to segment diameter.

Measurements (holotype) in mm:

Ocular segment length			0.50
Total trunk length (anterior tip to tip of 4th lateral processes)			.84
Trunk width (across 2nd lateral processes)			.31
Proboscis length			.40
Abdomen length			.10
Third leg:		Tibia 1	.42
Coxa 1	0.07	Tibia 2	.42
Coxa 2	.19	Tarsus	.05
Coxa 3	.13	Propodus	.19
Femur	.44	Auxiliary claw	.08

Distribution: Known only from the type-locality, Key West, Florida.

Etymology: The specific name refers to the three tooth-like tubercles on the proboscis.

Remarks: This species first appeared to be an aberrant *Ascorhynchus* undergoing regeneration, but the second specimen with the same set of characters did not support this view. The peculiar tuberculate proboscis is unlike that of any other pycnogonid, to my knowledge, and may or may not be confined to the female. The ovigers appear as they would on most juvenile pycnogonids, but present an enigma on a mature female with eggs. Perhaps both specimens have damaged ovigers that

are undergoing regeneration. Only further collecting of male and female adults can solve these perplexing problems.

Achelia sawayai Marcus

Achelia (*Pigrolavatus*) *sawayai*.—Fry and Hedgpeth, 1969: 104 [literature].

Material examined: One female, just west of bridge to Fleming Key, south shore among intertidal and subtidal rocks, 24 March 1968, Sta. KW-3. Eight males, 6 females, 2 juveniles, scrapings of culvert wall carrying water from Cow Key Channel to ponds west of Airport, 0.3–0.6 meter, 14 May 1967, Sta. KW-5. Two males, 2 females, on rocks in above culvert, Sta. KW-6. One male, 1 female, 1 juvenile, Aero Palms Club at base of Trumbo Point, subtidal under rocks, 30 March 1968, Sta. KW-6. Two females, east side of Fleming Key near boat dock, with *Thalassia* and *Halimeda*, subtidal, 20 May 1967, Sta. KW-9.

Remarks: These specimens are typical and inseparable from their neighbors in the Dry Tortugas.

Ammothella appendiculata (Dohrn)

Ammothella appendiculata.—Stock, 1955: 250 (literature).

Material examined: One subadult, just west of bridge to Fleming Key, south shore among intertidal and subtidal rocks, 24 March 1968, Sta. KW-5. One male, 2 females, 3 juveniles, scrapings of culvert wall carrying water from Cow Key Channel to ponds west of Airport, 0.3–0.6 meter, 14 May 1967, Sta. KW-5.

Remarks: These specimens appear to be the more slender stage II described by Stock (1955: 251–2).

Ammothella sp.

Material examined: One juvenile, near bridge to U. S. Naval Hospital, associated with black ascidians on subtidal rock, 3 May 1964.

Remarks: This is unidentifiable, but probably is *A. appendiculata*.

Phoxichilidiidae Sars, 1891

Anoplodactylus jonesi, new species

Figure 2

Material examined: Holotype, USNM 150619, ovigerous hermaphrodite (?): Key West, southwest tip, off Fort Taylor, intertidal and subtidal, 24°32′55″N, 81°48′37″W, 21 June 1963, Sta. 2.

Description: Body unsegmented, but with marked indentations suggesting segmentation. Lateral processes glabrous, separated by their own diameter. Ocular tubercle low truncated cone pointing anteriorly.

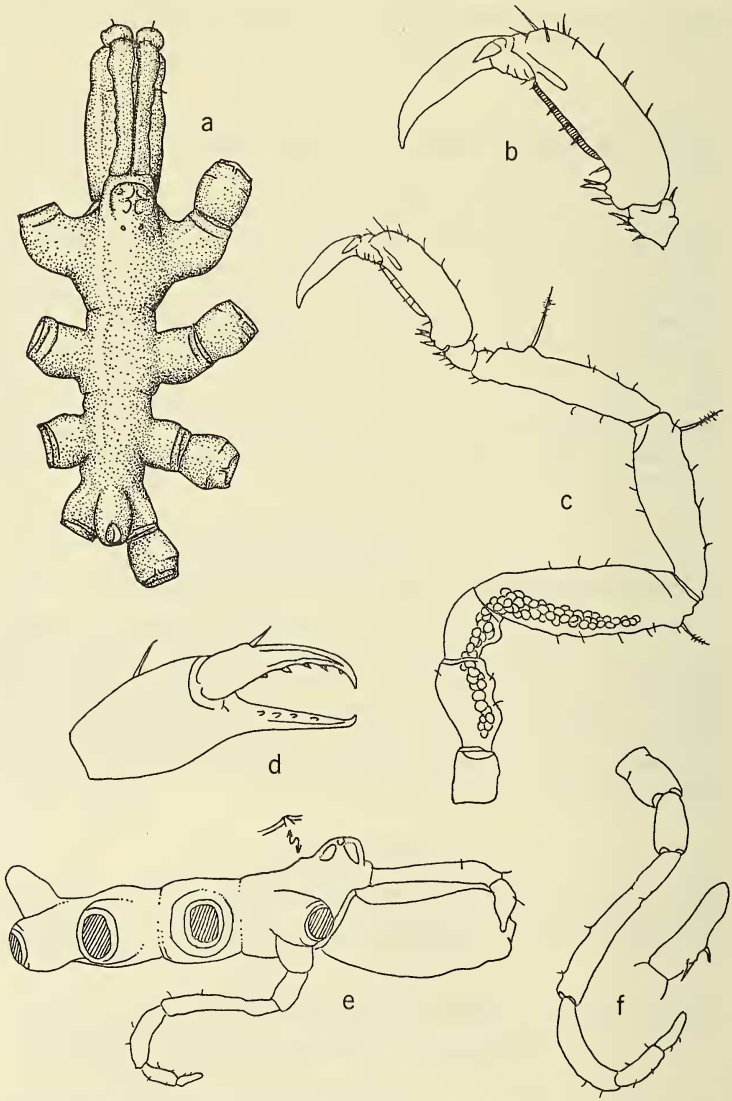

FIG. 2. *Anoplodactylus jonesi*, new species: a, dorsal view of trunk; b, terminal segments of third leg; c, third leg; d, chela; e, lateral view of trunk, with enlargement of dorsal pore; f, oviger with enlargement of terminal segment.

Eyes large, unpigmented. Two (sensory?) papillae on dorsolateral crown of ocular tubercle. Abdomen slightly longer than fourth lateral processes, erect, without setae.

Proboscis cylindrical, slightly constricted anteriorly.

Chelifore as long as proboscis, thin. Scape armed with 2 lateral setae and 1 dorsodistal seta. Chela small, fingers curved, tips overlap when closed, armed with 2–3 setae on hand and movable finger and 4–5 minute teeth on each finger.

Oviger segments 1 and 2 subequal; segment 3 longest, with proximal constriction and 2 distal setae. Terminal segments increasingly shorter, armed with 2–4 setae. Ultimate segment slightly shorter than segment 2, armed with 2 recurved setae.

Legs robust, tibiae subequal, femur slightly longer, each armed with few dorsal and ventral setae and single long dorsodistal feathered seta on tubercle. Propodus straight with small heel bearing 3 spines. Sole with lamina over almost entire length, armed with few setae. Claw slightly curved. Auxiliary claws robust, short.

Hermaphrodite characters: Ovigers of male, but lacking femoral cement glands. Female genital pores on coxa 2 of all four legs and mass of eggs in swollen femora. Two swollen pores immediately behind ocular tubercle may or may not have some sexual function. No evidence of glands seen beneath cuticle under pores.

Measurements in mm:

Trunk length (chelifore insertion to tip 4th lateral processes)			0.90
Trunk width (across 1st lateral processes)			.52
Proboscis length (ventral)			.50
Third leg:		Tibia 1	.48
Coxa 1	0.13	Tibia 2	.49
Coxa 2	.22	Tarsus	.07
Coxa 3	.20	Propodus	.33
Femur	.53	Claw	.24

Distribution: Known only from its type-locality, Key West, Florida.

Etymology: Named for its collector, Meredith L. Jones.

Remarks: There is nothing adherent on the ovigers which could prove them functional, and without the usual femoral cement glands of males in this genus I hesitate to call this specimen a true hermaphrodite. This single pycnogonid has all of the normal female characters, including eggs, and it is possible the ovigers are just the result of early embryonic misdetermination. There is nothing I could find in the leg that takes the form of a testis, such as that figured by Marcus (1952, p. 30, fig. 9) for *Ascorhynchus corderoi*. If subsequent collecting proves this to be a functional hermaphrodite, then *Anoplodactylus jonesi* will only mark the second record of this phenomenon in an otherwise dioecious group.

Besides the evident bisexual characters of this specimen, there is no other outstanding character that separates it from many others of this

large, cumbersome genus. Its two closest geographical associates on the American coast are *Anoplodactylus parvus* and *A. petiolatus,* and although it compares favorably in size to these two, chelifore and oviger length ratio differences separate it from *A. parvus.*

Propodus shape, ocular tubercle size, segment length ratios, and the presence of lateral process tubercles on *A. petiolatus* serve to separate *A. jonesi* from that species.

Anoplodactylus pectinus Hedgpeth

Anoplodactylus pectinus Hedgpeth, 1948: 234–236, fig. 34.—Stock, 1955: 235, fig. 11.—Arnaud, 1973: 955–957.

Material examined: Two females, Fleming Key, on east side near boat dock, with *Thalassia* and *Halimeda*, subtidal, 20 May 1967, Sta. KW-9.

Remarks: This is an easily recognized species and these specimens are typical of Hedgpeth's Tortugas males and Stock's Virgin Island females. Why these should turn up in the Indian Ocean at Madagascar (Arnaud, 1973) only serves to emphasize our extreme lack of knowledge concerning transport and zoogeography of the majority of pycnogonid species. So many species have appeared to be endemic to some areas, but later turn up in widely disparate places, sometimes as if to confound our various efforts to compartmentalize, that the value of distribution maps becomes questionable.

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